

RCE

Application No. 09/674,547

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A ~~pre-diluted coolant for use without~~ which is pre-diluted and does not require use of any additional water which provides effective metal corrosion inhibition and retains efficient mechanical seal function, comprising as its base component a member selected from the group consisting of deionized water having a specific resistance of $10 \times 10^6 \Omega \text{ cm}$ or higher with corrosive ions and scale forming ions having been removed, ethylene glycol aqueous solution prepared using such deionized water between approximately 15 and 50 percent by weight ethylene glycol, and propylene glycol aqueous solution prepared using such deionized water, and wherein said pre-diluted coolant comprises at least between approximately 50 and 85 percent by weight said deionized water.

Claim 2 (original): A pre-diluted coolant according to claim 1, wherein said base component contains at least one ingredient, in an effective amount or amounts, selected from the metal inhibitor group consisting of alkali metal salts and amine salts of phosphoric acids, aromatic carboxylates including benzoic acid and alkali metal salts, ammonium salts and amine salts thereof, alkybenzoic acids having a chemical structure $\text{R-C}_6\text{H}_4\text{-COOH}$ (R is a C1-C5 alkyl group) and alkali metal salts, ammonium salts and amine salts thereof, alkoxybenzoic acids having a chemical structure $\text{RO-C}_6\text{H}_4\text{-COOH}$ (R is a C1-C5 alkyl group) and alkali metal salts, ammonium salts and amine salts thereof, cinnamic acids, alkylcinnamic acids and alkoxycinnamic acids having a chemical structure $\text{R-C}_6\text{H}_4\text{-CH=CHCOOH}$ (R is a C1-C5 alkyl or alkoxy group) and alkali metal salts, ammonium salts and amine salts thereof, aliphatic carboxylates including C6-C12 aliphatic monobasic acids and C6-C12 aliphatic dibasic acids and their alkali metal salts, ammonium salts and amine salts, aromatic polyvalent carboxylic acids, molybdates, tungstates, vanadates, alkali metal salts of nitric acid, alkali metal salts of silicic acids, alkali metal salts of boric acids, alkali metal salts of nitrous acid, triazole hydrogencarbonate, mercaptobenzothiazole, strontium compounds, 2-phosphonobutane-1,2,4 tricarboxylic acid and alkali metal salts thereof.

Application No. 09/674,547

Claim 3 (original): A pre-diluted coolant according to claim 1 or 2, wherein alkali metal salts and amine salts of phosphoric acids, alkali metal salts of silicic acids, alkali metal salts of boric acids, alkali metal salts of nitrous acid, aliphatic monobasic acids and aliphatic dibasic acids are excluded and not contained in said base component, wherein at least one of 0.1-5.0 wt.% of p-tert butyl benzoic acid and alkali metal salts thereof, and at least one of 0.01-1.0 wt.% of triazoles are contained in said base component.

Claim 4 (original): A pre-diluted coolant according to claim 1 or 2, wherein 0.01-8.0 wt.% of alkylbenzoic acids having a chemical structure $R-C_6H_4-COOH$ (R is a C1-C5 alkyl group) or their alkali metal salts, ammonium salts or amine salts are contained in said base component.

Claim 5 (original): A pre-diluted coolant according to claim 1 or 2, wherein 0.01-8.0 wt.% of alkoxybenzoic acids having a chemical structure $RO-C_6H_4-COOH$ (R is a C1-C5 alkyl group) or their alkali metal salts, ammonium salts or amine salts are contained in said base component.

Claim 6 (original): A pre-diluted coolant according to claim 1 or 2, wherein 0.01-8.0 wt.% of cinnamic acids, alkylcinnamic acids or alkoxycinnamic acids having a chemical structure $R-C_6H_4-CH=CHCOOH$ (R is H, or a C1-C5 alkyl or alkoxyl group), or their alkali metal salts, ammonium salts or amine salts are contained in said base component.

Claim 7 (original): A pre-diluted coolant according to claim 1 or 2, wherein alkali metal salts and amine salts of phosphoric acids, alkali metal salts of silicic acids, alkali metal salts of boric acids and alkali metal salts of nitrous acid are excluded and not contained in said base component, wherein 0.1-4.0 wt.% of at least one of sebacic acid and alkali metal salts thereof, and 0.1-3.0 wt.% of at least one of p-tert butylbenzoic acids and alkali metal salts thereof are contained in said base component.

Application No. 09/674,547

Claim 8 (original): A pre-diluted coolant according to claim 1 or 2, wherein phosphates, amine salts, silicates, borates and nitrites are excluded and not contained in said base component, wherein 0.1-0.4 wt.% of at least one of sebacic acid and alkali metal salts thereof, 0.1-3.0 wt.% of at least one of undecanoic diacid and dodecanoic diacid and their alkali metal salts, and 0.01-1.0 wt.% of at least one of triazoles are contained in said base component.

Claim 9 (original): A pre-diluted coolant according to claim 1 or 2, wherein 0.02-5.0 wt.% of at least one of C6-C12 aliphatic monobasic acids and their salts, and 0.02-5.0 wt.% of at least one of alkoxybenzoic acids having a C1-C5 alkoxy group and their salts are contained in said base component.

Claim 10 (original): A pre-diluted coolant according to claim 9, further containing 0.1-1.0 wt.% of at least one of triazoles.

Claim 11 (previously amended): A pre-diluted coolant according to claim 9, wherein amine salts and borates are excluded and not contained.

Claim 12 (original): A pre-diluted coolant according to claim 1 or 2, wherein 0.02-5.0 wt.% of at least one of hexanoic acid and heptanoic acid and their salts, and 0.02-5.0 wt.% of at least one of alkylbenzoic acids having a C1-C5 group and salts thereof are contained in said base component.

Claim 13 (original): A pre-diluted coolant according to claim 12 further containing 0.01-1.0 wt.% of at least one triazoles.

Claim 14 (previously amended): A pre-diluted coolant according to claim 12, wherein amine salts and borates are excluded and not contained.

Application No. 09/674,547

Claim 15 (original): A pre-diluted coolant according to claim 1 or 2, wherein 0.02-5.0 wt.% of at least one of C6-C12 aliphatic monobasic acids and salts thereof, and 0.02-5.0 wt.% of at least one of cinnamic acids, alkylcinnamic acids and alkoxyacinnamic acids having a chemical structure $R-C_6H_4-CH=COOH$ (R is a C1-C5 alkyl group or alkoxy group) and their alkali metal salts, ammonium salts and amine salts are contained in said base component.

Claim 16 (original): A pre-diluted coolant according to claim 15, further containing 0.01-1.0 wt.% of at least one of triazoles.

Claim 17 (previously amended): A pre-diluted coolant according to claim 15, wherein amine salts and borates are excluded and not contained.

Claim 18 (original): A pre-diluted coolant according to claim 1 or 2, wherein 0.01-8.0 wt.% of at least one of p-toluic acid salts and 0.002-1.0 wt.% of at least one of molybdates.

Claim 19 (original): A pre-diluted coolant according to claim 18, further containing 0.01-8.0 wt.% benzoates.

Claim 20 (original): A pre-diluted coolant according to claim 18, further containing 0.01-8.0 wt.% of p-tert butylbenzoic acid.

Claim 21 (previously amended): A pre-diluted coolant according to claim 18, wherein nitrites are excluded and not contained.

Application No. 09/674,547

Claim 22 (original): A pre-diluted coolant according to claim 1 or 2, wherein 0.01-8.0 wt.% of at least one of benzoates, 0.01-8.0 wt.% of p-tert butylbenzoic acid and 0.002-1.0 wt.% of at least one of molybdates are contained in said base component.

Claim 23 (original): A pre-diluted coolant according to claim 22, further containing 0.01-8.0 wt.% of at least one of p-toluic acid salts.

Claim 24 (previously amended): A pre-diluted coolant according to claim 22, wherein nitrites are excluded and not contained.

Claim 25 (original): A pre-diluted coolant according to claim 1 or 2, wherein 0.01-8.0 wt.% of at least one of benzoates and 0.01-8.0 wt.% of at least one of p-toluic acid salts are contained in said base component.

Claim 26 (original): A pre-diluted coolant according to claim 25, further containing 0.01-8.0 wt.% of p-tert butylbenzoic acid.

Claim 27 (previously amended): A pre-diluted coolant according to claim 25, wherein nitrites are excluded and not contained.

Claim 28 (original): A pre-diluted coolant according to claim 1 or 2, wherein 0.00002-0.1 wt.% of at least one of strontium compounds is contained in said base component.

Claim 29 (original): A pre-diluted coolant according to claim 1 or 2, containing 0.01-3.0 wt.% of at least one of phosphoric acids and salts thereof, 0.001-0.5 wt.% of at least one molybdic acid, tungstic acid and vanadic acid and their salts, and 0.001-0.5 wt.% of at least one of triazoles and salts thereof.

Application No. 09/674,547

Claim 30 (original): A pre-diluted coolant according to claim 1 or 2, wherein 0.002-1.0 wt.% of at least one of 2-phosphonobutane-1,2,4 tricarboxylic acids and aqueous solutions thereof, at least one of phosphates, at least one of nitrates, at least one of benzoates and at least one of triazoles are contained in said base component.

Claim 31 (original): A pre-diluted coolant according to claim 30, wherein 0.002-2.0 wt.% of at least one of nitrates, 0.02-6.0 wt.% of at least one of benzoates, and 0.01-2.0 wt.% of at least one of triazoles are contained in said base component.